

Where to install a single-fiber bidirectional optical module



Article Overview

Single-fiber BiDi optical modules enable full-duplex communication over a single fiber using wavelength division multiplexing (WDM), reducing fiber usage by up to 50% while maintaining high-speed connectivity.

Overview of BiDi Optical Modules

BiDi SFP transceivers are designed to transmit and receive data simultaneously over a single strand of optical fiber. Unlike traditional duplex SFPs that require two fibers—one for transmitting (TX) and one for receiving (RX)—BiDi modules use different wavelengths for each direction (e.g., 1310 nm for TX and 1550 nm for RX) to achieve full-duplex communication without interference. This is accomplished through an internal WDM filter or coupler that separates incoming and outgoing signals, ensuring data integrity and avoiding crosstalk.

Key Installation Considerations

- **Module Pairing:** BiDi modules must be deployed in complementary pairs, where the TX wavelength of one module matches the RX wavelength of the other. For example, if Module A transmits at 1310 nm and receives at 1550 nm, Module B should transmit at 1550 nm and receive at 1310 nm.
- **Fiber Type:** Use single-mode fiber (SMF) for long-distance links. The fiber should be clean and free of bends or damage to minimize signal loss.
- **Distance and Wavelength Selection:**
 - For 1G links up to 40 km, typical wavelength pairs are 1310/1550 nm or 1310/149...

Article Content

Sep 27, 2025

Bidi single fiber bidirectional optical module, all you want to know is ...

Bidi single fiber bidirectional optical module can be installed in switches, optical fiber transceivers, OEO converters

Mar 16, 2026

BiDi SFP Module: A Complete Guide for Fiber Networks

Learn what a BiDi SFP module is, how it works, key types, benefits, and when to use BiDi optics in fiber networks.

Aug 17, 2025

Understanding BIDI SFP Optical Transceiver Modules

Discover BIDI SFP optical transceivers, the single-fiber bidirectional modules that optimize fiber usage. Learn how they

Feb 23, 2026

SFP+ BiDi 10G Guide: Single Fiber 10G Optical Transceivers

SFP+ BiDi 10G is a 10-gigabit optical transceiver technology designed to transmit and receive data over a single strand of single

Oct 13, 2025

A Guide To Bidi Optical Transceivers

BiDi transceivers have become synonymous with reliable and high-performance networks, enabling bidirectional fiber

Mar 18, 2026

Understanding BIDI SFP Optical Transceiver Modules

A pair of SFP+ BiDi optical modules are inserted into the fiber optic converters at both ends and connected via a single

Dec 19, 2025

Comprehensive Guide to FS 10G BiDi SFP Modules

FS 10G BiDi SFP+ modules are a powerful tool for network engineers seeking to boost bandwidth without doubling

Nov 17, 2025

The Difference Between Single/Dual Fiber and Single/Multi-Mode Optical ...

As fiber optic networks continue to evolve, selecting the right optical transceiver becomes increasingly important.

Mar 01, 2026

BiDi SFP: The Complete Guide to Bidirectional SFP Transceivers and ...

BiDi SFP (Bidirectional Small Form-Factor Pluggable) transceivers have emerged as a powerful solution, enabling full

Feb 28, 2026

What is the BIDI Fiber Optical Transceives and How to choose it?

The structure of the single-fiber BiDi optical module is more complicated than that of the ordinary dual-fiber

Sep 12, 2025

Single-Fiber Bidirectional Transmission and Single-Fiber

This mode is mainly used on the client side, implemented through the filtering function of a single-fiber bidirectional optical module.

Jan 24, 2026

Bidirectional SFP Selection Guide for Single-Fiber Links

Single-fiber communication has become increasingly common in environments such as campus networks, metropolitan access

Aug 28, 2025

The Essential Guide to BiDi Transceivers: Everything You Need to Know

Bi-Directional (BiDi) Transceiver is a compact optical transceiver module that uses WDM (wavelength division

Sep 08, 2025

The Complete Guide to BiDi Transceiver

This article delves into the intricacies of BiDi optical modules, their operational principles, and the critical role fiber

May 12, 2026

Bidirectional SFP Selection Guide for Single-Fiber Links

Learn how to choose the right bidirectional SFP for single-fiber links. Compare wavelengths, distances, and compatibility to optimize

Jan 18, 2026

What Is a Single Fiber SFP? A Complete Guide for Beginners

What Is a Single Fiber SFP? Single fiber SFP is an optical transceiver that transmits and receives data over a single strand of

Oct 07, 2025

BiDi Single-Fiber Bidirectional Optical Module Details

While general optical modules have two ports for transmission and reception, BiDi optical modules have only one port,

Jul 19, 2026

What are BiDirectional SFP Modules and How Do They Work?

What is a BiDirectional SFP Module? Bidirectional (BiDi) transmission involves using a single fiber core rather than the two used in

Jul 24, 2026

Comprehensive Guide to FS 10G BiDi SFP Modules

Enter the 10G BiDi (bidirectional) SFP+ module —an elegant solution that enables full-duplex communication over a

Oct 07, 2025

Things You Should Know About BiDi SFP Modules

Things You Should Know About BiDi SFP Modules For the past few years, SFP transceiver modules have received

Contact Us

For more information, pricing, or custom solutions, please contact us:

Website: <https://www.greatpremiersolutions.co.za>

Email: sales@greatpremiersolutions.co.za

Phone: +27 82 914 3675

Address: Unit 5, Silicon Heights, 22 Electron Avenue, Cape Town, 8001, South Africa

This document is for informational purposes only. Specifications subject to change without notice.

